
Ceropegia striata, a New Species of Asclepiadaceae in Central Madagascar

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ABSTRACT. A new species of Asclepiadaceae—Stapelieae from central Madagascar, *Ceropegia striata* Meve & Masinde, is described and illustrated. The delicate, tuberous twiner is characterized by linear corolla lobes and purplish, adaxially bulging vascular bundles resulting in the conspicuous striation of the completely whitish-greenish corolla. Due to similarities in vegetative growth and corona morphology, *C. striata* is probably nearest to *C. madagascariensis* Decaisne.

In the conspectus of the Malagasy *Ceropegia* L., Meve and Liede (1994) listed 16 species in four sections, including section *Dimorpha*, which was formally established. Except for two varieties, all new Malagasy *Ceropegia* species described since Huber's (1957) revision belong to the section *Dimorpha*—a section consisting of several groups of highly variable and seemingly closely related species. Formally, *C. striata* would belong to the section *Janthina* of which *C. madagascariensis* is the type species. However, this section sensu Huber (1957) is an assemblage of not always closely related species and is therefore in urgent need of recircumscription. On Madagascar, *C. striata* is to be grouped with other twining species having a root tuber, thin and herbaceous stems, and membranous leaves, namely, *C. humbertii* H. Huber, *C. madagascariensis* Decaisne, *C. saxatilis* Jumelle & H. Perrier, and *C. scabra* Jumelle & H. Perrier.

Ceropegia striata Meve & Masinde, sp. nov.

TYPE: Madagascar. Central highlands, Vavavato Massif, ca. 22 km W Antsirabe, Betafo, 19°45'S, 46°55'E, 1800 m a.s.l., 21 Dec. 1995, Grubenmann *s.n.* (holotype, ZSS; isotype, MSUN, in spirit). Figure 1.

Affinis *C. madagascariense* Decaisne sed corolla albaviridi cum striis purpureis longistrorsis, lobis corollae angustis atropurpureis, ciliatis densis praeter margines, tubo corollae basaliter globuloso, corona glabra, lobis coronae

staminalis spathiformibus planis, albis sed basaliter purpureis differt.

Plant delicate, geophytic climber, herbaceous. *Rootstock* roundish, flattened tuber, ca. 20–28 mm diam., smooth, light brown. *Stems* herbaceous, deciduous, rarely branching, 1.0–2.5 mm diam., green with reddish tinge when exposed to direct sunlight, twining, glabrous. *Leaves* shortly petiolate, petiole 1–2 mm long, less than 1 mm wide, ±straight, canaliculate above, stipules minute, subulate, short-lived; leaf blades linear-elliptic to small lanceolate, acute, 10–30 × 5–8 mm, membranous, green, glabrous except for few recurved hairs along margins. *Inflorescence* extra-axillary, usually 1-flowered, subsessile with peduncle less than 1 mm long, 1 accompanying bract lanceolate-subulate, acute, ca. 1 mm long, pedicel ± 5 mm long. *Sepals* lanceolate, flattened and appressed to corolla tube, ± 1 mm long. *Corolla* 25–35 mm long, abaxially glabrous; basal third of tube forming globoid inflation, ca. 7 × 6 mm, merging into narrow, cylindrical, ascending upper half of tube with conical mouth, ca. 12–15 mm long, basally 1–2 mm wide, apically 6–8 mm wide. Tube abaxially and adaxially whitish-greenish, with purplish adaxially bulging bundles, tube segments and each lobe contain 3 anthocyanin-pigmented bundles, each with central bundle strongest, pigmentation of each bundle restricted to outer phloem parenchyma plus an additional subcuticular stripe of parenchyma, tube glabrous except for ring of weak, descending hairs around mouth of tube; corolla lobes linear, ca. 10 × 0.7 mm, erect, joined at apex, margins only slightly recurved, abaxially green, adaxially black-purple, margins densely lined with purplish (only basally whitish) trichomes, trichomes slightly vibratile, ±1 mm long, somewhat moniliform in outline. *Gynostegial corona* in total ±3.5 × 3.5 mm, cup-shaped; staminal corona lobes connivent-erect, spatulate, abaxially slightly convex, adaxially slightly concave, 2–2.5 × 0.6–0.7 mm, glabrous, whitish

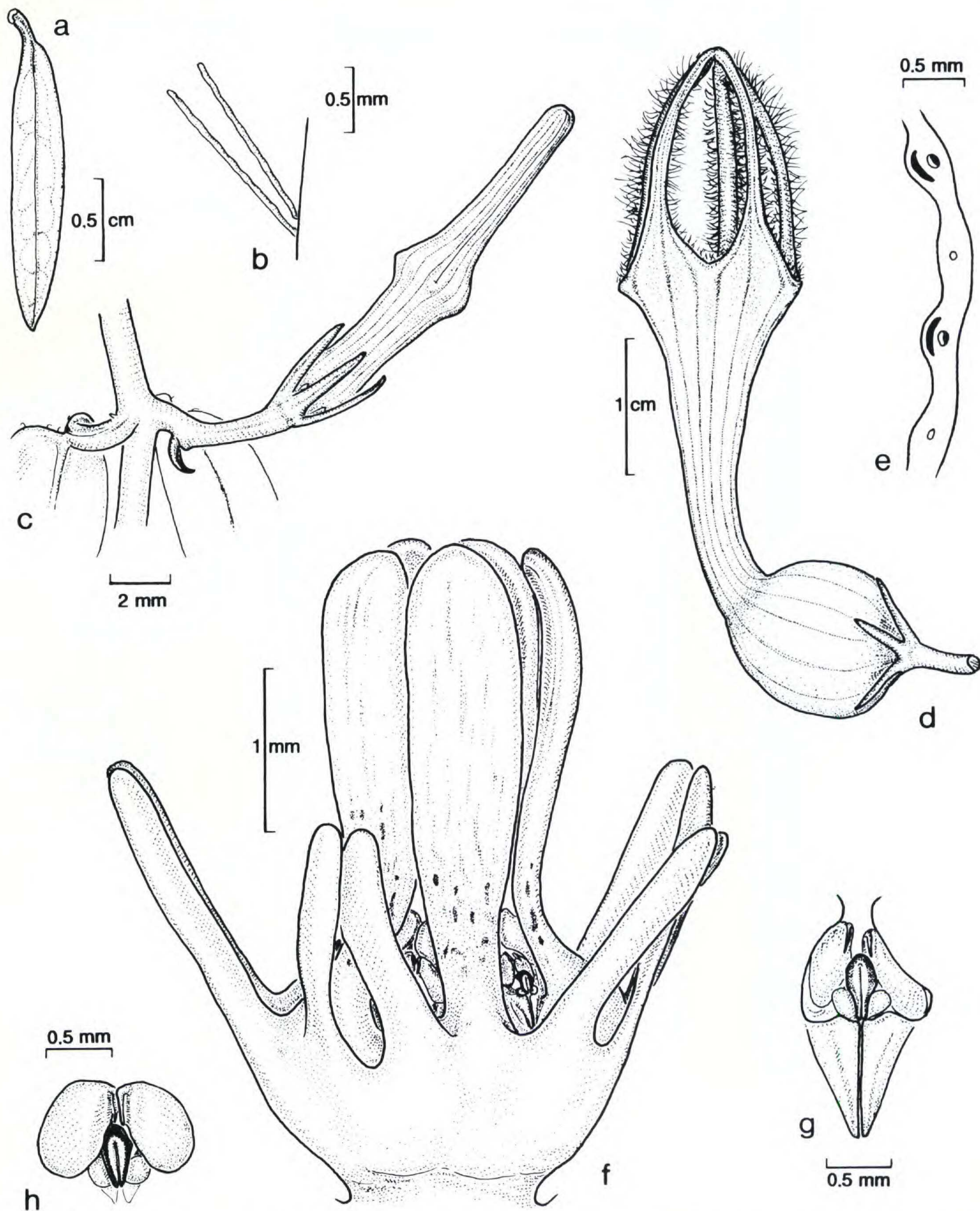


Figure 1. *Ceropegia striata* Meve & Masinde. —a. Leaf. —b. Ciliation on corolla lobe margin. —c. Inflorescence with flower bud. —d. Mature flower. —e. Cross section through basal corolla tube wall showing anthocyanin-pigmented parenchyma and vascular bundles (black). —f. Gynostegial corona in lateral view. —g. Guide rail. —h. Pollinarium (drawn by U. Meve from the type, *Grubenmann s.n.*).

with purplish bases, occasionally the bases spotted purplish, interstaminal corona parts bifid, connivent, suberectly spreading, \pm linear with rounded apex, $\pm 1.5 \times 0.3$ mm, glabrous, whitish, purplish only on adaxial basal half. *Gynostegium* subsessile,

whitish, guide rails ± 400 μ m long, straight without being widened at their mouths. *Pollinarium*: corpusculum obovate, $\pm 200 \times 80$ μ m, basally with roundish, translucent lateral projections; pollinia broadly elliptic, $\pm 300 \times 150$ μ m.

Table 1. Differences in the distinguishing characters of *Ceropegia striata* and *C. madagascariensis*.

Characters	<i>C. striata</i>	<i>C. madagascariensis</i>
Stem	No formation of stem tubers	Sometimes with stem tubers at nodes
Leaves	Linear-elliptic, petioles 1–2 mm long	Ovate, petioles 7–20 mm long
Corolla coloration	Purple striated	Faintly spotted reddish brown
Basal inflation of corolla tube	Basal 1/3 inflated	Basal 1/2 inflated
Corolla lobes	Linear, not considerably folded back	Triangular, considerably folded back
Staminal corona lobes	Spathulate, apically smooth	Linear-clavate, apically verrucose
Interstaminal corona lobes	Glabrous	Hairy

Habitat and conservation status. On granite hillock, at 1800 m, tubers somewhat exposed in pouches filled with humus-rich sand. A rare Malagasy endemic known only from the type locality in central Madagascar.

The diagnostic features for *Ceropegia striata* are: the connivent-erect, spathulate staminal corona lobes; the purplish or at least purplish mottled corona, except for the upper part of the staminal lobes; a complete striation of the corolla due to the adaxially bulging bundles pigmented with anthocyanin; and the small, linear, black-purple, slightly recurved corolla lobes, which are densely ciliated along their margins. *Ceropegia striata* is easily distinguishable from *C. madagascariensis* (Table 1), which probably represents its closest known relative. The biseriate corona with its connivent-erect staminal lobes and the interstaminal lobes deeply indented, more or less to the base, is rather similar in both species. In addition, staminal corona lobes are about twice as long as the interstaminal lobes.

As in the two taxa discussed above, *Ceropegia saxatilis*, *C. scabra*, and *C. humbertii* also have rounded root tubers in combination with a herbaceous plant body. However, all three species have flowers without purplish striations and differently shaped corollas and corolla lobes. Their staminal corona lobes are linear-clavate and less than twice as long as the interstaminal lobes.

Ceropegia hermannii was recently described by Rauh and Teissier (1996) and placed in close relationship with *C. madagascariensis*. However, *C. hermannii* is actually a member of the variable *C. albisepta* complex. The following characters in *C. hermannii* support this placement: the long internodes; the sub-succulent often mucronate leaves; the considerably stalked, fleshy, many-flowered in-

florescences; the basally broadly keeled corolla lobes; the basal inflation with 5 vague indentations; and the abruptly narrowed tube, so that the basal inflation has a rather horizontal roof.

The five species, *Ceropegia humbertii*, *C. madagascariensis*, *C. saxatilis*, *C. scabra*, and *C. striata*, form a natural grouping as well as the basis of section *Janthina*, since the type species of this section is included. Further investigations with ample material are needed to establish whether there are other species that belong to this group.

Acknowledgments. Moritz Grubenmann, Zürich, and Hans Rentsch, Saas, the discoverers of the new species, collected the resting tuber, erroneously taking it for a *Cynanchum* species. Later in Zürich, the plant flowered, revealing its identity. We thank Mr. Grubenmann for providing us with slides and alcohol material of *C. striata*. Peter Deitelhoff, Münster, corrected the Latin diagnosis. We are grateful to Focke Albers, in whose laboratories the investigations were undertaken.

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NOTE ADDED IN PROOF:

Recently, Werner Rauh, Heidelberg, provided us with paratypic material of *C. striata* [Madagascar. Central Highlands: above Antsirabé, Rauh 75008 (HEID; MSUN, in alc.)]. This plant has smaller leaves (1.0–3.0 mm) than the type, and the corolla lobes are shorter and broader with the apical half green and glabrous.